Diversified Technologies, LLC

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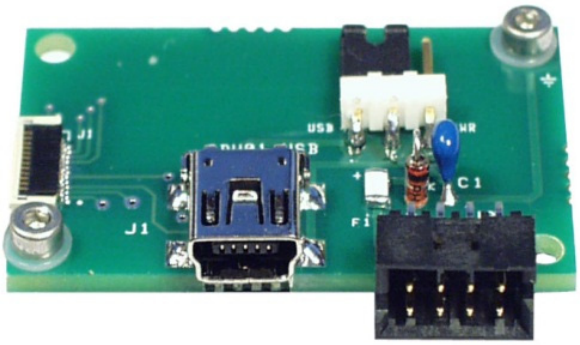
DTC-2D-U02
USB Interface
User's Manual



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Throughout this manual, trademarked names might be used. We state herein that we are using the names to the benefit of the trademark owner, with no intention of infringement.

Disclaimer

The information and specifications described in this manual are subject to change without notice.

Technical Support

For technical support, visit: **www.DTC-2D.com** or call +1 (585) 461-2110 during regular business hours EST.

Warranty and Terms of Sale

For Standard Warranty information, see: **www.DTC-2D.com/warranty.htm**

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THE DTC-2D-S01 SERIAL INTRFACE IS NOT DESIGNED, MANUFACTURED, OR INTENDED FOR USE OR RESALE AS ON-LINE CONTROL EQUIPMENT IN HAZARDOUS ENVIRONMENTS, REQUIRING FAIL-SAFE PERFORMANCE, SUCH AS IN THE OPERATION OF NUCLEAR FACILITIES, AIRCRAFT NAVIGATION OR COMMUNICATION SYSTEMS, AIR TRAFFIC CONTROL, DIRECT LIFE SUPPORT MACHINES, OR WEAPONS SYSTEMS, IN WHICH THE FAILURE OF TECHNOLOGY COULD LEAD DIRECTLY TO DEATH, PERSONAL INJURY, OR SEVERE PHYSICAL OR ENVIRONMENTAL DAMAGE.

Statement of agency compliance

The DTC-2D-S02 conforms to the following Product Specifications:

FCC Compliance: FCC Part 15, Subpart B
The DTC-2D-S02 is RoHS compliant.

This certification applies to the DTC-2D-S02 as a stand-alone OEM industrial product and does not apply to the DTC-2D-S02 as an integrated module. When integrating the DTC-2D-S02 into another product, that product will still need to obtain any applicable certifications for the full or final product.

IMPORTANT: The DTC-2D-S02 and Microscan MS-2D scan engine are intended for connection to a UL-listed direct plug-in power unit marked Class II and rated 5 VDC at 5 Watts, or greater if using additional I/O and/or electrical accessories.

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About this manual

The DTC-2D-U02 interface is an USB communications accessory for Microscan's new, state-of-the-art OEM MS-2D Scan Engine and allows standard EIA RS-232 communications with the OEM engine unit. It is designed as a low-profile daughter card that would normally mount directly on top of the MS-2D scanner.

The DTC-2D-U02 USB interface permits the Microscan MS-2D OEM scan engine to be used in designs where the OEM, VAR, or end-user simply wants to use the MS-2D engine design without a costly design-integration into custom discrete circuitry.

The DTC-2D-U02 is a Standard HID USB interface converter for the MS-2D engine. All other I/O and control signals are passed through directly.

This manual provides information on connecting the DTC-2D-U02 USB interface card to the Microscan MS-2D scan engine. For scanner operations, please refer to the Microscan ***MS-2D Scan Engine User's Manual***. *P/N 84-000008 Rev A*, or the Microscan website, www.Microscan.com.

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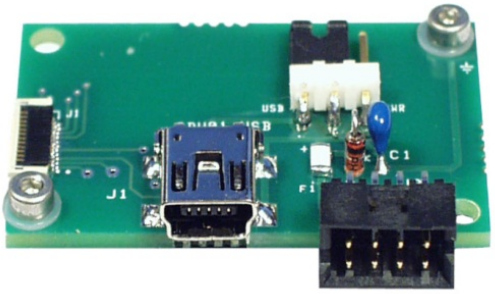
DTC-2D-U02 USB interface daughter card



Getting Started

Caution: Be sure that all cables are connected **BEFORE** applying power to the system. Always power down **BEFORE** disconnecting any cables.

Important: The DTC-2D-U02 and Microscan MS-2D scan engine are intended for connection to a UL-listed direct plug-in power unit marked Class II and rated 5 VDC at 5 Watts, or greater if using additional I/O and/or electrical accessories.

Package contents

Item	Description	Part Number
1	DTC-2D-U02 USB Interface card	DTC-2D-U02

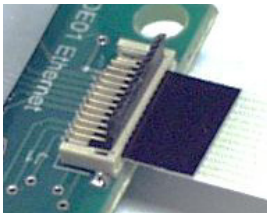
Attaching the DTC-2D-U02 interface card to the MS-2D scan engine.

To attach the included 2 inch flexible interface cable to the scanner engine board, first slide the end of the ribbon cable with exposed tin leads facing the circuit board (upward), into the housing. Then carefully push the ZIF connector hinged clamp mechanism downward so that it covers the contact points, as seen below.

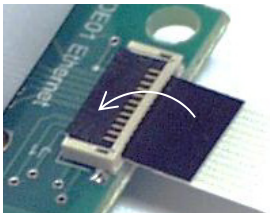
Do the same thing for the end of the flex cable that attaches to the DTC-2D-U02 interface card. As shown below. Again, the exposed tinned leads must be facing the circuit card (downward).

Open

Insert flex cable



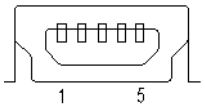
Close connector



Caution: The connector housing and clamp mechanism are very fragile.

Attaching the DTC-2D-U02 interface to your host system.

To attach the DTC-2D-U02 Interface to your host, use the USB Type B jack as seen below. For convenience, any USB/B to USB/A host cable will work.



JACK

J3 MINI-USB/B CONNECTOR

1	USB +5v Power	Red
2	D-	Wht
3	D+	Grn
4		
5	GROUND	Blk

Attaching the DTC-2D-U02 interface to your host system. *Continued.*

If your purchase included an MS-2D scan engine, the scanner communications have been preset to:

Parameters	ESP Values
Communications	
Communications Mode	USB Native (HID)
Reader Packet Format	Raw
Reader to Host Packet Size	16384
Expect Host Response	Disabled
Reader Send Retry Count	3
Host Acknowledgement T...	15
Text Commands	Disabled; enable magic sequence
USB Keyboard Rate	10
Keyboard Mapping	US English (without leading 0 in alt-num)
RS232	
Text Command Timeout	11000

Host Communications

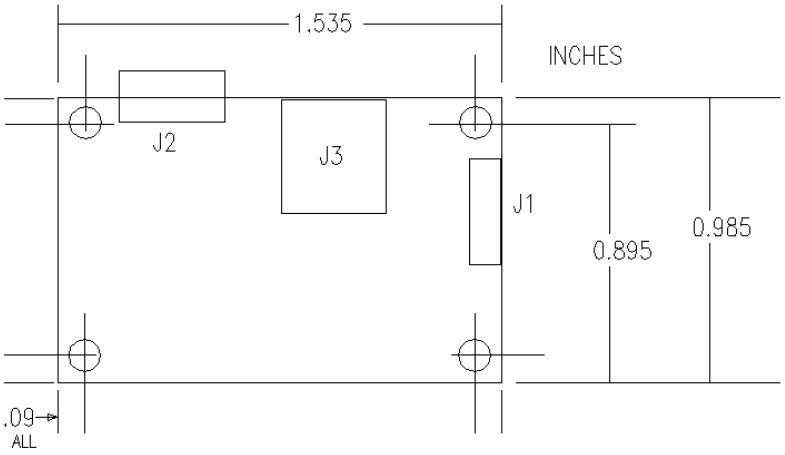
There are two ways to configure and test the MS-2D Engine:

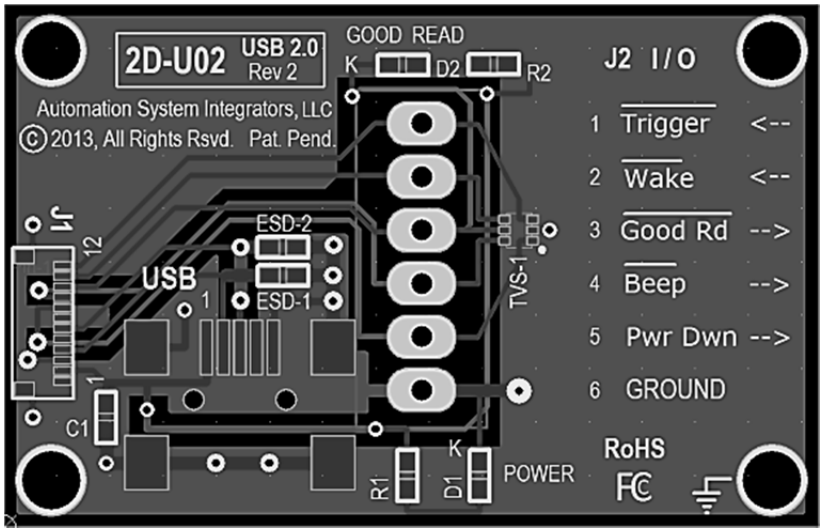
- Microscan's Windows-based **ESP** (Easy Setup Program) Software, which offers point-and-click ease of use and visual responses to user adjustments.
- Data Matrix programming symbols encoded with configuration commands.

In both cases, refer to the Microscan ***MS-2D Scan Engine User's Manual***. *P/N 84-000008 Rev A,* for operations details and procedures.

The DTC-2D-U02 is a Standard USB HID interface converter for the MS-2D engine. All other I/O and control signals are passed through directly.

DTC-2D-U02 Specifications.





DTC-2D-U02 Specifications	
Power In	**Port Powered 5 VDC**
Current Draw w/Scanner	**315 mA typical, 57mA Idle, 1.6mA Sleep**
Dimensions	**0.98 in. (D) x 1.53 in. (W) x 0.25 in.(H) { 25 x 39 x 6.4 mm. }**
Weight	**10 grams**
Operating Environment	**-4 to 50 °C (0 to 131 °F), 5-95% RH, non-condensing**
Host Interface	**Standard USB 2.0, Mini-USB/B jack**
User Interface	**Phoenix micro terminal block for trigger and I/O**

J2 I/O Connector	
1	Not Used
2	Power Down
3	Wake Up (Active Low)
4	Trigger (Active Low)
5	Beep Output (Active Low)
6	Good Read (Active Low)
7	DC Ground
8	5 VDC Power

Appendix – 1 Common MS-2D Data Matrix Configuration Symbols

C3

RS-232 Raw Mode (Default)

B1

RS-232 115200 Baud (Default)

A4

RS-232 57600 Baud

A3

RS-232 38400 Baud

A2

RS-232 19200 Baud

A1

RS-232 9600 Baud

E1

RS-232 8 Data Bits (Default)

D4

RS-232 7 Data Bits

B4

RS-232 No Parity (Default)

B2

RS-232 Even Parity

B3

RS-232 Odd Parity

C1

UART Flow Control None (Default)

C2

UART Flow Control Hardware

Appendix – 1 Common MS-2D Data Matrix Configuration Symbols. *Continued.*

E2

M0136_02

Postamble - CR
(Serial Only)

E4

M0138_02

Postamble - LF
(Serial Only)

A1

M0139_02

Postamble - CR LF
(Serial Only)

E1

M0166_01

Save Settings

For the full command set, refer to the Microscan ***MS-2D Scan Engine User's Manual***. *P/N 84-000008 Rev A.*